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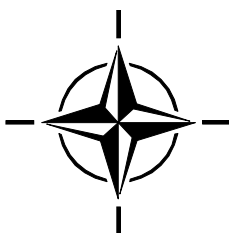
**RTO MEETING PROCEEDINGS**

**MP-MSG-069**

**Current uses of M&S Covering Support to  
Operations, Human Behaviour Representation,  
Irregular Warfare, Defence against Terrorism and  
Coalition Tactical Force Integration**

(Utilisation actuelle M&S couvrant le soutien aux opérations, la  
représentation du comportement humain, la guerre asymétrique, la  
défense contre le terrorisme et l'intégration d'une force tactique de  
coalition)

Papers presented at the NATO RTO Modelling and Simulation Group  
Symposium held in Brussels, Belgium on 15 and 16 October 2009.



Published October 2009



# The Research and Technology Organisation (RTO) of NATO

RTO is the single focus in NATO for Defence Research and Technology activities. Its mission is to conduct and promote co-operative research and information exchange. The objective is to support the development and effective use of national defence research and technology and to meet the military needs of the Alliance, to maintain a technological lead, and to provide advice to NATO and national decision makers. The RTO performs its mission with the support of an extensive network of national experts. It also ensures effective co-ordination with other NATO bodies involved in R&T activities.

RTO reports both to the Military Committee of NATO and to the Conference of National Armament Directors. It comprises a Research and Technology Board (RTB) as the highest level of national representation and the Research and Technology Agency (RTA), a dedicated staff with its headquarters in Neuilly, near Paris, France. In order to facilitate contacts with the military users and other NATO activities, a small part of the RTA staff is located in NATO Headquarters in Brussels. The Brussels staff also co-ordinates RTO's co-operation with nations in Middle and Eastern Europe, to which RTO attaches particular importance especially as working together in the field of research is one of the more promising areas of co-operation.

The total spectrum of R&T activities is covered by the following 7 bodies:

- AVT     Applied Vehicle Technology Panel
- HFM     Human Factors and Medicine Panel
- IST     Information Systems Technology Panel
- NMSG   NATO Modelling and Simulation Group
- SAS     System Analysis and Studies Panel
- SCI     Systems Concepts and Integration Panel
- SET     Sensors and Electronics Technology Panel

These bodies are made up of national representatives as well as generally recognised 'world class' scientists. They also provide a communication link to military users and other NATO bodies. RTO's scientific and technological work is carried out by Technical Teams, created for specific activities and with a specific duration. Such Technical Teams can organise workshops, symposia, field trials, lecture series and training courses. An important function of these Technical Teams is to ensure the continuity of the expert networks.

RTO builds upon earlier co-operation in defence research and technology as set-up under the Advisory Group for Aerospace Research and Development (AGARD) and the Defence Research Group (DRG). AGARD and the DRG share common roots in that they were both established at the initiative of Dr Theodore von Kármán, a leading aerospace scientist, who early on recognised the importance of scientific support for the Allied Armed Forces. RTO is capitalising on these common roots in order to provide the Alliance and the NATO nations with a strong scientific and technological basis that will guarantee a solid base for the future.

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# **Current uses of M&S Covering Support to Operations, Human Behaviour Representation, Irregular Warfare, Defence against Terrorism and Coalition Tactical Force Integration (RTO-MP-MSG-069)**

## **Executive Summary**

The importance of Modelling and Simulation (M&S) and its impact on training, experimentation and analysis in NATO and nations is well-known and continues to grow. The Committee this year decided against a single Symposium Theme and chose instead to seek papers across a number of topically key themes that many nations are currently engaged in and would merit further discussion.

All of the above-mentioned themes continue to benefit from advances in low-cost, high power computers, graphics from the commercial and telecommunications markets, and developments in the military environment to enable better interoperability and reuse between simulations and the integration of Command & Control systems.

During this two-day conference, 21 papers were presented in seven sessions. The sessions grouped NATO and national contributions into categories of common topics covering all of the aspects included in the main topics for this conference. Due to interest and to the distribution of papers received, two sessions were needed to accommodate all selected papers on Human Behaviour Representation and Defence Against Terrorism.

This year, a fairly large number of nations contributed to the programme, 11 nations were presenting including presentations from current NMSG Technical Activities MSG-048 and MSG-088 and also ACT. It is worth mentioning the inclusion of Ukraine contributing for the first time to an NMSG event.

This year, an homogeneous blend representing the three pillars covering participants from Government, Industry and Academia was achieved.

The Keynote Address from Admiral Canova (ACT) created the required climate of participation and interest that remained though the whole conference. It was clear from the presentations that Interoperability issues regarding simulations, Open Standards, M&S and C2 systems, new technologies incorporated though readily available COT/GOT products remain as top priority topics for Nations and NATO bodies and as such, can be proposed as future topics for the annual NMSG conference.

In summary, the keynotes and papers presented during the conference give a good overview of current capabilities and ongoing efforts of NATO, its Nations and its partners and how M&S can help, decrease cost and increase efficiency in all those areas where additional R&D is needed. M&S does not yet meet all defence challenges, but the foundation is solid and open gaps are starting to be addressed.

# **Utilisation actuelle M&S couvrant le soutien aux opérations, la représentation du comportement humain, la guerre asymétrique, la défense contre le terrorisme et l'intégration d'une force tactique de coalition**

## **(RTO-MP-MSG-069)**

### **Synthèse**

L'importance de la modélisation et de la simulation (M&S) et leur impact sur la formation, l'expérimentation et l'analyse au sein de l'OTAN et des nations est bien connue et continue à se développer. Le Comité s'est prononcé cette année contre un symposium à thème unique et a choisi à la place de chercher des contributions parmi un certain nombre de thèmes clés sur lesquels beaucoup de nations sont actuellement engagées et qui mériteraient davantage de discussion.

Tous les thèmes mentionnés ci-dessus continuent à tirer bénéfice des avancées en matière d'ordinateurs de forte puissance à faible coût, des documents graphiques présents sur les marchés commerciaux et de télécommunications, ainsi que des développements de l'environnement militaire afin de leur permettre une meilleure interopérabilité et leur réutilisation entre la simulation et l'intégration dans les systèmes d'information et de commandement.

Pendant cette conférence de deux jours, 21 contributions ont été présentées au cours de 7 sessions. Les sessions ont regroupé des contributions de l'OTAN et des contributions nationales par catégories de sujets communs couvrant tous les aspects des principaux domaines de cette conférence. En raison de l'intérêt et de la répartition des contributions reçues, deux sessions ont été nécessaires pour traiter les documents sélectionnés concernant la Représentation du comportement humain et la Défense contre le terrorisme.

Cette année, un assez grand nombre de nations ont contribué au programme, 11 nations ont assuré les présentations comprenant les présentations des activités techniques en MSG-048 et MSG-088 et d'ACT. Il convient de mentionner la participation de l'Ukraine qui contribuait pour la première fois à un événement NMSG.

Cette année un mélange homogène de participants représentant les trois piliers – gouvernement, industrie et milieu universitaire – a pu être réalisé.

L'exposé d'ouverture de l'amiral Canova (ACT) a créé le climat de participation et d'intérêt voulu, climat qui s'est maintenu pendant toute la durée de la conférence. Il était clair à l'issue des présentations que les problèmes d'interopérabilité concernant les simulations, les normes ouvertes, les systèmes M&S et C2, les nouvelles technologies incorporées alors que les produits de COT/GOT sont déjà disponibles, restent les sujets prioritaires pour les nations et les organes de l'OTAN et, comme tels, peuvent être proposés en tant que futurs sujets pour la conférence annuelle de NMSG.

En résumé, les éléments essentiels et les contributions présentées pendant la conférence donnent une bonne vue d'ensemble des capacités actuelles et des travaux continus de l'OTAN, de ses nations et de ses partenaires et de la façon dont la M&S peut aider, diminuer les coûts et augmenter l'efficacité dans tous les secteurs où une R&D additionnelle est nécessaire. La M&S ne relève pas encore tous les défis de la défense, mais les fondations sont solides et les fossés encore ouverts commencent à être comblés.